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ABSTRACT OF THE DISCLOSURE

Several embodiments of a stiff, metallic hub for an energy storage devices are disclosed in the present invention. The stiff hub produces a critical velocity that is significantly greater than the design operating speed of the flywheel assembly so that resonant frequency is never reached during normal operation of the energy storage device's flywheel assembly. The stiff hub comprises a central core section that maintains a tight interference fit with the rotating shaft; an outer rim section that maintains a tight interference with the high-strength, low-density composite fiber rim, in which energy primarily is stored; and a web section that is situated therebetween, extending radially from the rotary shaft. At high operating speeds, the outer rim of the hub expands radially commensurate with expansion of the composite fiber rim so that enough of the outer rim remains in tight interference fit with the composite fiber rim to substantially minimize vibrations.

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